Outcome of gamete intrafallopian transfer in women of 40 and over according to whether the number of oocytes transferred was rstricted. Values are numbers (percentages) of treatment cycles

Outcome	Group 1 (no restrictions)	Group 2 (restrictions)
Pregnancy	34 (23)	113 (16)
No pregnancy	117 (78)	618 (85)
Total	151 (100)	731 (100)

χ^2 With Yates's correction = 4·0, df = 1; $P < 0·05$.

(3%), and two such pregnancies occurred in group 2 (2%). There were no quadruplet or higher order pregnancies, regardless of the number of oocytes transferred.

Comment

Our results show that the chance of pregnancy after gamete intrafallopian transfer in women over 40 is reduced by restricting the maximum number of oocytes that may be transferred. The restrictions aim at reducing the incidence of multiple pregnancies, which result in higher morbidity and mortality. The risk of multiple pregnancy after gamete intrafallopian transfer is, however, inversely related to age.[3] Because of their reduced fertility and the restrictions designed to protect against multiple pregnancy older women may be tempted to use oocytes donated by a young woman to maximise their chances of pregnancy, but, paradoxically, they will be at increased risk of multiple pregnancy. We have already warned of this risk in recipients of oocytes from young donors[4] but we are unaware of any quadruplet or higher order pregnancy occurring in a woman aged 40 or older after natural conception or assisted conception in which the woman's own oocytes have been used.

Multiple pregnancy in older women after transfer of a flexible number of oocytes (12% twins and 3% triplets in this study) should be compared with rates accepted after transfer of the present maximum of three embryos in all women having in vitro fertilisation (24·5% twins and 4·6% triplets).[5] We believe that more oocytes should be allowed to be transferred in older women having gamete intrafallopian transfer as their risk of having twins or triplets is low, with little risk of higher order pregnancy.

This study was supported by Life-Force Research.

1 Craft I, Al-Shawaf T, Ah-Moye M. Fiamanya W, Lewis P, Robertson D, *et al.* Analysis of 1071 GIFT procedures—the case for a flexible approach to treatment. *Lancet* 1988;i:1094-8.
2 Sauer MV, Paulson RJ, Lobo RA. Reversing the natural decline in human fertility. An extended clinical trial of oocyte donation to women of advanced reproductive age. *Lancet* 1992;**286**:1275-9.
3 Nelson JR, Corson SL, Batzer FR, Gocial B, Huppert L, Go KJ, *et al.* Predicting success of gamete intrafallopian transfer. *Fertil Steril* 1993;**60**: 116-22.
4 Craft IL, Fedah M, Sirigotis M, Redgment C, Majid Y. Pregnancy in postmenopausal women. *Lancet* 1993;**341**:697.
5 Human Fertilisation and Embryology Authority. *Annual report.* London: HFEA, 1993:19.

(Accepted 16 March 1994)

Water birth and infection in babies

J Rawal, A Shah, F Stirk, S Mehtar

Departments of Paediatrics, Obstetrics and Gynaecology, and Microbiology, North Middlesex Hospital, London N18 1QX
J Rawal, *senior registrar in paediatrics*
A Shah, *consultant paediatrician*
F Stirk, *head of midwifery*
S Mehtar, *consultant microbiologist*

Correspondence to:
Dr Shah.

BMJ 1994;309:511

Water births are becoming more popular among mothers and midwives because the buoyancy of water and the warmth of the water used in such births promotes "natural" labour while providing a non-invasive, safe, and effective form of pain management.[1] Concern has been expressed, however, about contamination of the birthing tub system (the tub and its accessories) with bacteria that could cause infection in a baby. Virulent bacteria such as *Pseudomonas aeruginosa* and *Klebsiella pneumoniae* have been reported in water pumps and heating systems,[2] filling hoses of the tub,[3] and water in the tubs.[4] Nevertheless, we do not know of any reports of a baby becoming infected owing to a water birth. We report on a newborn baby who developed pseudomonas sepsis after water birth.

Case report

A full term baby boy, weighing 3600 g, was born in the birthing tub of the labour ward of our hospital. His mother had no fever before the birth, and the membranes were ruptured for less than 12 hours. His condition at birth was good and Apgar scores were normal. At 11 hours of age he had two episodes of cyanosis. He was feeding poorly. On examination he was hypotonic and his peripheries were poorly perfused, with mottling of the skin. Probable septicaemia was diagnosed. Swabs from the ear and umbilicus and samples of urine, blood, and cerebrospinal fluid were taken for culture. He was given intravenous penicillin and gentamicin. Within 48 hours the swabs had grown *P aeruginosa* and gentamicin had been changed to ceftazidime. Within a further two days he had recovered. After being treated with antibiotics for seven days, he was discharged.

The cultures of urine, blood, and cerebrospinal fluid were sterile. The samples taken from the baby's incubator yielded no growth, but specimens taken from the birthing tub, filling hose, taps, exit hose, and disposable lining of the tub all grew *P aeruginosa*. The *P aeruginosa* that was isolated from the birthing tub system and from the umbilical swab was serotype 2 (Division of Hospital Infection, Colindale). Contamination of the birthing tub system had occurred despite meticulous washing with hot water and detegent and drying of the system after each birth.

Comment

Despite the increase in popularity in water births during the past decade reliable evidence is lacking about the benefits and hazards associated with such births. We have reported the case of a baby who became colonised with a virulent organism during water birth. The blood cultures were sterile, which argues against him being frankly septicaemic. Nevertheless, he behaved and looked like a septic baby and he responded convincingly to antibiotics.

This case highlights an important potential hazard of water birth. Although the results of the research on water birth being carried out by the National Perinatal Epidemiology Unit are still awaited, we endorse the need expressed by others that there should be regular microbiological surveillance of birthing tub systems with strict policies on infection control.[3,5] Our policy now is to take samples for cultures from the birthing tub system after each water birth. We have shortened the filling and exit hoses, and these are heat disinfected after use.

1 Balakas J, Gorden Y. *Water birth.* London: Unwin Hayman, 1990.
2 Loomes SA, Finch R. Breeding ground for bacteria (letter). *Nursing Times* 1990;**86**(6):14-5.
3 Robb EJ, Spiby H, Norman P. Hygiene in birthing pools (letter). *Nursing Times* 1991;**87**(39):14.
4 George R. Bacteria in birthing tubs (letter). *Nursing Times* 1990;**86**(14):14.
5 Zimmermann R, Huch A, Huch R. Water birth. Is it safe? *J Perinat Med* 1993;**21**:5-11.

(Accepted 18 May 1994)